NOAA SECTORAL APPLICATIONS RESEARCH PROGRAM (SARP):

Climate and Water

FY 2007 INFORMATION SHEET

I. Program Context

NOAA's Climate Program has recently established a Regional Decision Support (RDS) effort to accelerate the Program's interaction with users of climate information and forecasts at multiple spatial and geographical scales. The RDS portfolio helps NOAA identify and serve the nation's needs for climate information to support decision making through an integrated program of: 1) research and assessment related to impacts and decision making needs; 2) transition of research to operations; and 3) operational production and delivery of local and regional climate services that can be utilized to enhance adaptive management options. NOAA's RDS activities include efforts managed by the research and operational entities of the agency, and involve productive partnerships with other agencies, universities and stakeholders. In support of the research component of the RDS effort, the newly established NOAA Sectoral Applications Research Program (SARP) will identify and promote research and application priorities that foster improved decision support for fundamental climate-related issues in key socio-economic sectors. The SARP effort, which has its roots in the Human Dimensions of Global Change Research (HD); the Environment, Science and Development (ESD); and the Climate Variability and Human Health (CVHH) programs, is complementary to NOAA's other substantial investments in decision support research: the Regional Integrated Sciences and Assessment (RISA) and the NOAA Transition of Research Applications to Climate Services (TRACS) Programs (initially known as the NOAA Climate Transition Program (NCTP)). Together, these three efforts seek to provide effective geographical and topical coverage of climate-related issues in a decision-making context.

II. Program Goals

The NOAA Sectoral Applications Research Program (SARP) was established in 2005 to support research activities focused on the role of climate and climate information in the decisionmaking process in order to enhance resource management and the development of resilient socioeconomic sectors. SARP is designed to systematically build an interdisciplinary and expressly applicable knowledge base and mechanism for the creation, dissemination and exchange of climate-related research findings critical for understanding and addressing resource management challenges in vital social and economic sectors (e.g., coastal, water resources, agriculture, health, etc.). The overarching goals of SARP include:

- The provision of new and/or synthesized science-based knowledge that results in the identification of impacts and societal vulnerability, and enhanced capacity to cope with and adapt to climate variability and change in key socioeconomic sectors;

- The enhanced and increasingly sophisticated use of climate information and related decision support tools in planning and resource management;

- The provision of sector-specific insight and feedback related to stakeholder requirements and capabilities that contribute to the development of an increasingly effective and relevant climate research and decision support effort.

III. Program Structure

The SARP effort is composed of several distinct focal areas, each of which addresses the role of climate and climate information in a specific sector. Each year, the identification of these sectors depends upon NOAA priorities, program budgets, and input from the Federal, research and decision making communities. Current SARP emphasis is on water resources and coastal resource management. From a programmatic perspective, each of these sectors can be viewed as organizing/integrating systems that serve as a plane for understanding and addressing many complex socioeconomic issues that are influenced by climate, and for developing linkages with specific decision makers and partners. The program will explore the development of other sectors in the coming years (e.g., urban, health, agriculture).

IV. FY 2007 Funding Opportunities

In FY 2007, SARP will offer two distinct funding opportunities, focusing on A) water resources; and B) coastal resource management. Separate review processes will be conducted for each competition. Each sector has identified specific topics of interest for FY 2007 described in the following two sections; however, there are several topics of interest common to both sectors:

1. The identification and analysis of the social and economic impacts of climate variability and societal vulnerabilities, the potential value of climate information in sector-specific decision making processes, and assessments of new climate-related information needs articulated from the perspective of risk managers;
2. The development and prototype implementation of decision support tools that are designed to integrate climate science (including social, physical and natural aspects) into efforts to reduce vulnerability and increase community resilience in the face of climate change and variability, and related hazards (including insights into how such tools should be evaluated); and
3. The design of education/outreach/extension materials and methodologies intended to communicate climate information within a full context of the many and varied factors important to adaptation to the effects of climate variability and change. We are eager to support the development of materials and communication processes that stimulate and support productive dialogues with decision makers, students, and/or the general public.

Following are details about the water resource management project competition. Information about the SARP Climate and Coastal Resource Management Project are

detailed in a separate information sheet on the Climate Program Office website: http://www.climate.noaa.gov/index.jsp?pg=/opportunities/opp_index.jsp&opp=grants

SARP Climate and Water Resource Management Project

In 2007, the SARP Climate and Water Resource Management Project invites proposals specific to (i) water resources management in urban areas and to (ii) drought.

i) Water Resource Management in Urban Areas

There has been an unprecedented growth in the world's urban population in the last few decades. In 2000, nearly half of the world's population lived in urban areas; by 2030, there are estimates that 60 percent of the world's population will be urban. As a result of this growth, the population has had to expand into areas previously deemed less desirable and/or safe. Concurrently, there is a realization of the potential impact of climate in urban areas and the necessity to include climate variability and change in present and future planning efforts.

In FY 2007, the SARP Climate and Water Resource Management Project is soliciting proposals related to research on the understanding and assessment of the economic implications of climate variability in urban areas and the resulting response options within an integrated urban water management arena. We are also interested in receiving proposals concerned with the development of decision support tools and pilot projects for urban planners. Finally, we are interested in projects related to education, outreach and extension. These projects are intended to bring existing understanding and scientific information products to bear on actual resource management decisions, and to provide input to the scientific community regarding decision maker needs and capacities. Note that while this is a very broad field, in this proposal solicitation, we are interested in emphasizing the climate-related effects of water quantity and its implications on water resource management.

ii) Drought-related Proposals

Given the continuing and new drought conditions in regions throughout the world, the interest of the U.S. Congress in drought issues and the National Integrated Drought Information System (NIDIS), and the increasing interest in supporting decisions sensitive to climate, SARP will provide funding for projects specifically addressing human populations coping with drought. In particular, SARP is interested in research on the socioeconomic impacts of drought as well as directed regional decision support:

- **Socioeconomic Impacts of Drought.** Funds will be available for new research into the socioeconomic impacts of drought and its cycles, and current and potential coping mechanisms for reduction of vulnerability to drought. It has been widely recognized that an essential element in moving from ad-hoc response to drought preparedness and mitigation is more sophisticated drought impacts information. Funding will be directed to such areas as: economic analyses of the cost of drought (including the effects of

collective mitigation efforts); studies of institutional constraints and innovations in the area of drought preparedness; and specific data and information needs related to reducing vulnerability to drought impacts

- **Basin-specific Drought Regional Decision Support. T**his effort seeks proposals to assemble the collective work of researchers funded competitively through NOAA and other agencies and practitioners working to advance adaptive capacity to provide a comprehensive examination of drought decision support and water management in a U.S. river basin. Some suggested activities would include: an inventory of relevant research performed within and outside of the region, an inventory or assessment of on-going and target mission-related activities of government agencies in the basin regarding drought mitigation, a synthesis of the present use of climate information (including data and forecasts), an accounting of gaps in information and approach, and a formal report detailing recommendations for future opportunities and activities.

V. Approach

Multidisciplinary teams of investigators are often best suited for addressing the complex issues related to climate, society and enhanced adaptation through the use of science and technology. Thus, the SARP effort encourages proposals from PI teams comprised of different social science disciplines or across the disciplines of the social, natural and physical sciences. In the past, many of the successful projects have integrated social with natural or physical science components to form a more comprehensive analysis of the dynamics of climate-human interactions. Furthermore, proposals involving decision makers/stakeholders/resource managers as direct participants are highly encouraged. (Please note that support for extensive modeling of the physical system is more appropriately handled through climate science programs both within the other sections of NOAA's Climate Program Office and other agencies.)

Unless otherwise noted, SARP projects can be focused on regions in the US or overseas where the impacts of climate variability are acute and/or significant. Research teams must present evidence of strong collaborations with local researchers and institutions (e.g., NGOs, extension services, state and local governments, representative private sector organizations) in the region of study. Letters of support from local collaborators should be included with the proposal.

Projects should (where possible) involve decision makers and/or resource managers in the design and implementation of the project. The total project cost is expected to fall between $50k - $300k. Projects should be 6-24 months in duration, with a clear and discrete outcome/impact at the end of this period.

We would also like to encourage creative methods of conveying the results of work done under the grant or more general knowledge about climate-human interactions to the broader community of researchers and decision makers. For example, information can be displayed on websites, in non-scientific newsletters, on CDs, on short video documentaries that can be copied and disseminated, etc. We require successful grant

applicants to provide some digital video and/or photographs of fieldwork (if applicable). These could be used in future NOAA websites, presentations and/or publications.

Applicants whose proposals are chosen for funding will be expected to undertake an ongoing dialogue with NOAA's Research Decision Support research group. Part of this dialogue may consist of a Principal Investigators' meeting of funded projects to discuss common questions and frameworks to be addressed in the new research projects and periodic teleconferences with other SARP-funded Principal Investigators.

VI. Recommendations for a Successful Proposal

The full guidelines for the submission of Letters of Intent and proposals can be found in the NOAA FY 2007 call for proposals (www.climate.noaa.gov). However, after reviewing proposals for over a decade, we have found that the most successful Principal Investigators include the following components in their proposals.

1. Proposals that can show that they are building on what is already known from the published literature about the proposed topic (e.g., value of climate information, decision making under uncertainty, use/transfer of new scientific information, integrated modeling of natural and human systems, impact of climate on sector activities, sectoral decision making analyses) prove that the PIs have a comprehension of the topic and that their proposed work will augment the existing science. Publication lists from prior NOAA programs such as the Human Dimensions of Global Change Research and Environment, Science and Development Program projects are available on our website: http://www.climate.noaa.gov/cpo_pa/sarp/. In addition, a comprehensive substantial compilation of climate-related research and applications studies, supported through funding from NOAA's Climate Program and the International Research Institute (IRI) for Climate Prediction can be found at: http://iri.columbia.edu/outreach/climatesociety/.

2. We have found that it is essential that investigators describe in extensive detail the proposed methodology and how it will be accomplished. This plan should include an explanation of the roles of the investigators and how the team will interact and integrate the multiple components. Investigators who will not be requesting funds for salaries must also be listed along with their estimated time of commitment.

3. We have found it essential that investigators clearly define expected outcomes, provide a descriptive benefit analysis of the outcome, and describe their plan to measure the success of the project's outcome.

4. Given the desired outcome of the NOAA Regional Decision Support effort to foster improved decision making through the better understanding of climate and the use of related decision support tools, it is important that the investigators describe a dissemination plan for the study's results. Investigators will be expected to provide annual progress reports in a prescribed format that highlight scientific progress as well as linkages to practical applications.

5. While not essential, we would like to ask you to provide a minimum of four names of potential mail reviewers that NOAA could use to review your project. If we use your suggestions, these reviewers will have to sign a document that assures that there is no conflict of interest on their part in reviewing your proposal.

For further information, contact Nancy Beller-Simms regarding the water component of SARP (telephone: (301) 427-2351; or e-mail: Nancy.Beller-Simms@noaa.gov) and/or Lisa Vaughan regarding the coastal component of the program (telephone: (301) 427-2343; or e-mail: Lisa.Vaughan@noaa.gov). Both are located at: 1100 Wayne Avenue, Suite 1225, Silver Spring, MD 20910.